Amendment to the Claims

1. (Original) A method in a computer system for determining a pollutant load of a source at a selected confidence level, the method comprising:

receiving an indication of a control to be applied to the source, the control having a removal efficiency;

calculating an uncertainty ratio for the source at the confidence level based on coefficients of variation of an export coefficient and the removal efficiency, the uncertainty ratio indicating the portion of the load that will be generated by the source with the confidence level; and

calculating a determined load for the source based on the load and the calculated uncertainty ratio.

2. (Original) The method of claim 1 wherein the source is a subwatershed that has multiple non-point sources of the pollutant and the control is applied to a specific non-point source.

3. (Original) The method of claim 2 wherein the controlled non-point source is a land use and the control is a best management practice.

4. (Original) The method of claim 1 wherein the calculating of the determined load is further based on a delivery ratio to a confluence point.

5. (Original) The method of claim 4 wherein the delivery ratio factors in local delivery ratios of sources downstream from the source.

6. (Original) The method of claim 4 wherein the calculating of the determined load is based on a water quality ratio and a retirement ratio.

7. (Original) The method of claim 1 including calculating a trading ratio based on uncertainty ratios of two sources.

8. (Original) The method of claim 1 wherein the uncertainty ratio is calculated by the following equation:

$$UR_i = \frac{\bar{L}_i}{\bar{L}_i\left[1 + z_\alpha * CVL_i\right]} = \frac{1}{1 + 2 * CVL_i}$$

where UR_i is the uncertainty ratio for subwatershed i, $\bar{L}_i$ is the mean load of subwatershed i, CVL_i is the coefficient of variation of the load of subwatershed i, and z_α is the z value at a certain confidence level.

9. (Original) The method of claim 8 wherein the coefficient of variation of the load is calculated by the following equation:

$$CVL_i = \frac{\left(Var\left(L_i\right)\right)^{1/2}}{\bar{L}_i}$$

where CVL_i is the coefficient of variation of the load of subwatershed i, $Var(L_i)$ is the variance of the pollutant load of subwatershed i, and $\bar{L}_i$ is the mean load of subwatershed i.

10. (Original) The method of claim 8 wherein the coefficient of variation of the removal efficiency for controls in series is represented by the following equation:

$$CV\eta_{ij} = \prod_{k=1}^{n_{ij}} \left(1 + \frac{Var(\eta_{jk})}{(1 - \bar{\eta}_{jk})^2}\right)^{1/2}$$

where $CV\eta_{ij}$ is the coefficient of variation of the removal efficiency of land use j in subwatershed i, $Var(\eta_{jk})$ is the variance of the removal efficiency for BMP k in land use j, $\bar{\eta}_{jk}$ is the mean removal efficiency for BMP k in land use j, and n_{ij} is the number of BMPs of land use j in subwatershed i.

11. (Original) A method in a computer system for determining a load of a pollutant of a source within a confidence level, the source having a load, the method comprising:

calculating an uncertainty ratio for the source at the confidence level based on a coefficient of variation representing an uncertainty in the load of the source, the uncertainty ratio indicating a portion of the load that will be generated by the source with the confidence level; and

calculating a determined load for the source based on the load and the calculated uncertainty ratio.

12. (Original) The method of claim 11 wherein the coefficient of variation is based on an export coefficient.

13. (Original) The method of claim 12 wherein the export coefficient is based on a land use of the source.

14. (Original) The method of claim 12 wherein the calculating of the determined load is further based on a delivery ratio to a confluence point.

15. (Original) The method of claim 14 wherein the delivery ratio factors in local delivery ratios of sources downstream from the source.

16. (Original) The method of claim 14 wherein the calculating of the determined load is based on a water quality ratio and a retirement ratio.

17. (Original) The method of claim 12 including calculating a trading ratio based on uncertainty ratios of two sources.

18. (Original) The method of claim 12 wherein the uncertainty ratio is calculated by the following equation:

$$UR_i = \frac{\overline{L}_i}{\overline{L}_i\left[1 + z_\alpha * CVL_i\right]} = \frac{1}{1 + 2 * CVL_i}$$

where UR_i is the uncertainty ratio for subwatershed i, $\bar{L}_i$ is the mean load of subwatershed i, CVL_i is the coefficient of variation of the load of subwatershed i, and z_α is the z value at a certain confidence level.

19. (Original) The method of claim 18 wherein the coefficient of variation of the load is calculated by the following equation:

$$CVL_i = \frac{\left(Var\left(L_i\right)\right)^{1/2}}{\bar{L}_i}$$

where CVL_i is the coefficient of variation of the load of subwatershed i, $Var(L_i)$ is the variance of the pollutant load of subwatershed i, and $\bar{L}_i$ is the mean load of subwatershed i.

20. (Original) The method of claim 11 including receiving an indication of a control to be applied to the source, the control having a removal efficiency, wherein the coefficient of variation is based on the removal efficiency of the control.

21. (Original) The method of claim 20 wherein the source is a subwatershed that has multiple non-point sources of the pollutant and the control is applied to a non-point source.

22. (Original) The method of claim 21 wherein the controlled non-point source is a land use and the control is a best management practice.

23. (Original) The method of claim 20 wherein the calculating of the determined load is further based on a delivery ratio to a confluence point.

24. (Original) The method of claim 23 wherein the delivery ratio factors in local delivery ratios of sources downstream from the source.

25. (Original) The method of claim 23 wherein the calculating of the determined load is based on a water quality ratio and a retirement ratio.

26. (Original) The method of claim 20 including calculating a trading ratio based on uncertainty ratios of two sources.

27. (Original) The method of claim 20 wherein the uncertainty ratio is calculated by the following equation:

$$UR_i = \frac{\overline{L}_i}{\overline{L}_i\left[1+z_\alpha * CVL_i\right]} = \frac{1}{1+2*CVL_i}$$

where UR_i is the uncertainty ratio for subwatershed i, $\overline{L}_i$ is the mean load of subwatershed i, CVL_i is the coefficient of variation of the load of subwatershed i, and z_α is the z value at a certain confidence level.

28. (Original) The method of claim 20 wherein the coefficient of variation of the load is calculated by the following equation:

$$CVL_i = \frac{\left(Var\left(L_i\right)\right)^{1/2}}{\overline{L}_i}$$

where CVL_i is the coefficient of variation of the load of subwatershed i, $Var(L_i)$ is the variance of the pollutant load of subwatershed i, and $\overline{L}_i$ is the mean load of subwatershed i.

29. (Original) The method of claim 20 wherein the coefficient of variation of the removal efficiency for controls in series is represented by the following equation:

$$CV\eta_{ij} = \prod_{k=1}^{n_{ij}}\left(1+\frac{Var(\eta_{jk})}{(1-\overline{\eta}_{jk})^2}\right)^{1/2}$$

where $CV\eta_{ij}$ is the coefficient of variation of the removal efficiency of land use j in subwatershed i, $Var(\eta_{jk})$ is the variance of the removal efficiency for BMP k in land use j, $\overline{\eta}_{jk}$ is the mean removal efficiency for BMP k in land use j, and n_{ij} is the number of BMPs of land use j in subwatershed i.

30. – 61. (Canceled)